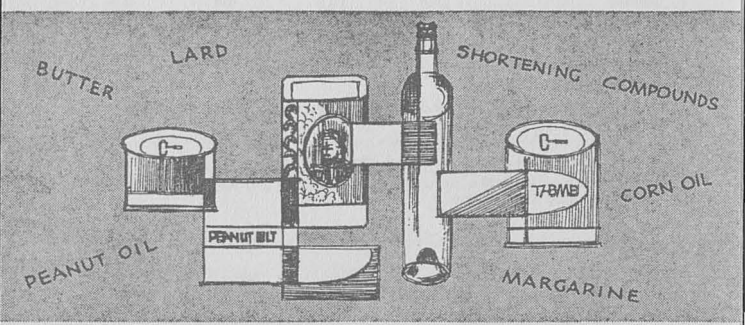
Extension Folder 185
June 1954

Know FATS and OILS



ELEANOR LOOMIS

WILLIAM H. DANKERS

UNIVERSITY OF MINNESOTA
Agricultural Extension Service
U. S. DEPARTMENT OF AGRICULTURE

KNOW FATS and OILS

As a homemaker you use fat or oil in every meal. These basic foods so essential to health can be obtained from a number of sources such as:

Animal fats—butter, lard, rendered beef fat.

Vegetable oils—soybean oil, cottonseed oil, corn oil, olive oil, peanut oil.

Fat Consumption

The per capita consumption of fats and oils is about 44 pounds per year. Actually our total individual consumption hasn't changed much but there has been a shift within the fats and oils group. The consumption trends are indicated in table 1.

Table 1. Civilian Per Capita Consumption in United States*

	Average 1935-39	Average 1947-49	Average 1951-53	Preliminary indications 1954
			pounds	
Butter	16.8	10.5	8.9	9.0
Margarine	2.8	5.5	7.4	7.8
Lard	10.9	12.2	11.7	10.4
Shortening compounds	11.6	9.5	9.7	10.9
Other edible fats and oils	6.4	7.2	8.5	9.4
Total fat	44.7	41.8	43.1	44.0†

* Source: *The National Food Situation*, February 1954.

† Includes only the actual fat content, 80 per cent of the pounds of butter and margarine.

Demand and Price

All fats and oils compete for the consumer's dollar. What Mrs. Consumer will buy depends on price, quality, the characteristics of the different fats and oils, and her personal preference.

Minneapolis average retail prices for the five-year period, 1949-53, are given in table 2 for butter, lard, shortenings, and margarine.

Table 2. Retail Price of Fats in Minneapolis

Commodity	Purchase unit	Retail price average for 1949-53
		cents
Butter	1 pound or 2 cups	76.5
Margarine	1 pound or 2 cups	41.0
Lard	1 pound or 2 cups	19.3
Shortening	1 pound or 2 cups	35.8

Butter

Minnesota ranks first in the production of butter. Butter is the solid product resulting from the churning of cream. The butterfat in butter is an excellent source of natural vitamin A. A deficiency of vitamin A causes changes in the eye, skin, and other parts of the body and an increased susceptibility to infections.

Butterfat contains unsaturated fatty acids. Research is being done at the present time to find out the relationship between fatty acids and the utilization of the B vitamins.

In addition to its food value butter is highly prized for its flavor. It contributes to the goodness and palatability of foods. As all or a portion of the fat in cookies, cakes, and pastries, it enhances the flavor of these foods.

Butter Grading

Although wholesale butter is graded and given a numerical score, the score or grade of butter seldom appears on the carton you buy in the store. It is generally sold under a brand name and the consumer must depend on the brand's reputation as to the grade of butter. When a consumer is in doubt she may inquire from the retailer about the actual score of the butter.

The United States Government grades are:

U. S. Grade AA or U. S. 93 score

U. S. Grade A or U. S. 92 score

U. S. Grade B or U. S. 90 score

U. S. Grade C or U. S. 89 score

U. S. Cooking Grade

Lard

Minnesota ranks third in the United States in the production of hogs. Lard is the fat rendered from the fatty tissues of the hog.

At retail, nearly all lard is marketed in cartons, pails, or cans. It is required by the Federal Food, Drug, and Cosmetic Act that the weight be stamped on the carton. Packaged lard and lard compounds are labeled "U. S. Inspected and Passed by the U.S.D.A." This stamp means that the materials from which the product is made have been examined and passed by the Federal Meat Inspection Service as pure and wholesome. All products containing lard

must be carefully and exactly labeled, for example: "pure lard," "refined and hydrogenated lard," and "pure lard, beef fat added."

Margarine

Before 1940 some foreign vegetable oils and considerable animals fats were used in the manufacture of margarine. Since that time, margarine has been produced largely from domestic soybean and cottonseed oil. In 1953 nearly 70 per cent of the ingredients in margarine was soybean oil. Minnesota ranks fifth in the nation in the production of soybeans.

Soybean and cottonseed oil are interchangeable in manufacturing margarine. Peanut oil and edible tallow are used in margarine to a limited degree.

There is a wide range in price of the different margarines on the market. This is due to the variation in the composition of margarines. Margarines with a high percentage of animal fat are less expensive.

The composition of margarine is listed on the carton so it is easy for a food shopper to determine what kind of margarine she wishes to buy, and to know what she is getting. All margarines are 80 per cent fat, and the rest of the ingredients are usually skim milk, salt, and a small amount of preservative. The ingredients used in margarine and shortening in the United States are given in table 3.

Table 3. Fats and Oils Used in Margarine and Shortenings

	Per cent contributed by various fats and oils			
	Margarine		Shortening	
	1945-49 average	1953	1945-49 average	1953
Domestic vegetable oils				
Cottonseed	55.0	26.0	29.9	22.0
Soybean	38.7	69.0	49.8	54.0
Peanut	.....	1.0	3.2	2.0
Other	2.8	2.0	4.7	5.0
Total domestic oils	96.5	98.0	87.6	83.0
Foreign vegetable oils				
Palm	.....	.....	.....	.....
Coconut	1.5	2.0	2.2	1.0
Other	.....	.....	.5	.....
Total foreign oils	1.5	2.0	2.7	1.0
Animal fats				
Edible tallow	.....	.....	3.0	2.0
Oleo oil and oleo stearine	.8	.....	1.2	.....
Neutral lard	.6	1.0	5.4	14.0
Other fats (animal and fish)	.6	1.0	.1	.....
Total animal fats	2.0	2.0	9.7	16.0

Hydrogenated Fats or Shortenings

Hydrogenated fats and compounds, often referred to as shortening compounds, include many of the well known brands of household cooking fats which are on the market.

Hydrogenation is the process by which hydrogen is added to oils to form hard fats. A shortening compound may be an all-vegetable oil compound or a mixture of animal fats and vegetable fats. Shortening compounds may include soybean oil, cottonseed oil, corn oil, and in the last few years lard.

Shortening compounds have no flavor or odor, because the fats and oils used in preparing them are refined before they are processed. These products can be kept almost indefinitely without refrigeration and they have a "high smoking point." That means they stand high cooking temperatures without beginning to smoke. There are many variable factors, such as food particles in used fat, that affect the smoking temperature.

Oils

The various oils used for food come from seeds and nuts. The source, characteristics, and major use of some of the food oils are given in table 4.

Table 4. Source, Characteristics, and Major Uses of Food Oils

Oil	Source	Characteristics	Major uses
Soybean	Soybeans	Distinct flavor even after processing. Characteristic odor.	Margarine Shortening compounds Packing canned fish
Cottonseed	Cottonseed	Bland and tasteless when processed.	Margarine Shortening compounds Cooking oil Salad oil
Corn	Corn	No odor or flavor when processed. Golden-yellow in color.	Cooking oil Salad oil
Olive	Olives	Light body. Straw or golden color. Characteristic flavor and aroma.	Cooking oil Salad oil
Peanut	Peanuts	Light color and agreeable flavor of peanuts.	Cooking oil Salad oil

Care of Fats in the Home

It is desirable to check the label to see if the fats can be kept on the pantry shelf or if they should be refrigerated.

Although some fats are flavorless, most fats easily become carriers of other flavors. This characteristic of absorbing flavors is the reason fats should be kept in tightly covered containers and protected from strongly flavored food and strong odors during storage.

When fats and oils take up oxygen from the air they become rancid. Rancidity is hastened by light, air, moisture, and heat. This is another reason why fats should be kept in a tightly covered container in a cool, dark place.

Fats which contain moisture develop molds unless they are kept very cold. If mold on fat is carefully removed with a knife, and the remaining fat appears normal, this remaining fat can be used.

Strain used fat to be stored. However, new fat should not be put into a can containing old fat which may already be slightly rancid, because the fresh fat will acquire the rancid flavor.

Strain fats which have been used for deep fat frying through one or more layers of cloth or a dairy filter before storing. If the fat is badly scorched or has acquired an off-flavor from other strongly flavored foods, it cannot be reconditioned.

Fats Are Essential

Fats are a necessary part of our daily diets. They are our most concentrated form of food energy.

Of all the nutrients, fats yield the most calories per unit of weight. They furnish more than twice as many calories as the same weight of either carbohydrates or proteins. Fats supply the body with lasting and satisfying energy.

UNIVERSITY OF MINNESOTA, INSTITUTE OF AGRICULTURE, ST. PAUL 1, MINNESOTA

Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota. Agricultural Extension Service and United States Department of Agriculture Cooperating, Paul E. Miller, Director. Published in furtherance of Agricultural Extension Acts of May 8 and June 30, 1914. 10M—6-54